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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/650,236

08/29/2000

Guoyu He

9862

7590

03/09/2005

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EXAMINER

ODOM, CURTIS B

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,236

Applicant(s)

HE, GUOYU

Examiner

Curtis B. Odom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-32 is/are allowed.
- 6) ☒ Claim(s) 1-18,33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities: The phrase “generating the third signal...” is suggested to be changed to “generating the signal which has a predetermined frequency”. Appropriate correction is required.
2. Claim 4 is objected to because of the following informalities: The phrase “an signal” is suggested to be changed to “a signal”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 6-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 6-10 recite the limitation “combining the output signal with the RF signal’s phase-shifted reference signal to provide two new output signals.” However, after reviewing the specification (See Fig. 6, pg. 10,

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line 28-pg. 16, line14), it is the understanding of the examiner that an output signal is combined with the RF signal's reference signal to produce a first new output signal (Fig. 6, F2.SUB.3), but the second new output signal (F2.SUB.1) is produced by combining the output signal with a phase shifted reference signal, not the reference signal itself. The simple combining of the output signal with the RF signal's phase shifted reference signal produces only one new output signal, not two new output signals.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 4, 5 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Gharpurey (U. S. Patent No. 6, 445, 726).

Regarding claim 1, Gharpurey discloses a method of using an electronic circuit comprising:

combining (Fig. 6, column 7, line 55-column 11, line 62) a radio frequency signal, and another signal (Fig. 6, block 62, c(t)p(t)) which has a predetermined frequency (column 11, lines

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15-46, 100 MHz) to generate an output signal, which is further combined with the radio frequency signal's reference signal (Fig. 6, block 70, $p(t)$) to obtain a new signal, wherein the new signal's frequency is solely responsive to the predetermined frequency (column 11, lines 15-46) and the new signal's phase is responsive to that of the radio frequency signal, wherein there is no PLL of phase shift used in the downconversion of the signal to change the phase of the RF signal at the conversion output, therefore, the phase is responsive to that of the received RF signal.

Regarding claim 2, which inherits the limitations of claim 1, Gharpurey discloses generating the signal which has a predetermined frequency using a crystal-stabilized oscillator (Fig. 6, block 66), wherein the oscillator is a crystal-stabilized oscillator.

Regarding claim 4, which inherits the limitations of claim 1, Gharpurey discloses converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal (column 1, lines 20-23).

Regarding claim 5, which inherits the limitations of claim 1, Gharpurey discloses transmitting the RF signal using an electronic conductor selected from the group consisting of antenna and cable (Fig. 6, element 56), wherein the RF signal is transmitted to the receiver and received using antennas as shown in Fig.6.

Regarding claim 33, Gharpurey discloses a method of using an electronic circuit comprising:

combining (Fig. 6, column 7, line 55-column 11, line 62) a radio frequency signal, and another signal (Fig. 6, block 62, $c(t)p(t)$) which has a predetermined frequency (column 11, lines 15-46, 100 MHz) to generate an output signal, which is further combined with the radio

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frequency signal's reference signal (Fig. 6, block 70, $p(t)$) to obtain a new signal, wherein the new signal's frequency is solely responsive to the predetermined frequency (column 11, lines 15-46) and the new signal's phase is responsive to that of the radio frequency signal without use of a phase locked loop or a similar phase lock device, wherein there is no PLL of phase shift used in the downconversion of the signal to change the phase of the RF signal at the conversion output, therefore, the phase is responsive to that of the received RF signal.

7. Claims 11, 12, 14, 17, 18 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Abe et al. (previously cited in Office Action 6/7/2004).

Regarding claim 11, Abe et al. discloses an apparatus (Fig. 13 and 14) comprising a signal source (Fig. 13 and 14, block 21), three multipliers (Fig. 13 and 14, blocks 8, 9, 24, and 25), two 90 degree phase shifters (Fig. 13 and 14, blocks 7 and 23), and an adder (Fig. 13 and 14, block 26, column 22, lines 12-42 wherein the subtractor adds a positive and negative signal) for converting a RF signal (column 20, line 42-column 21, line 27, and column 22, lines 12-15) to a new signal (output of block 26) whose frequency is solely responsive to a predetermined signal frequency (frequency of oscillator, block 21, column 22, line 45-column 23, line 10) provided by the signal source and whose phase is responsive to that of the RF signal, wherein there is no PLL used in the downconversion of the signal to change the phase of the RF signal at the demodulator output, therefore, the phase is responsive to that of the received RF signal.

Regarding claim 12, which inherits the limitations of claim 11, Abe et al. discloses the signal source is a crystal-stabilized oscillator (Fig. 13 and 14, block 21, column 22, lines 12-42), wherein the oscillator is a crystal-stabilized oscillator.

Regarding claim 14, which inherits the limitations of claim 11, Abe et al. discloses at least one signal amplifier (Fig. 13 and 14, block 2, column 20, lines 42-49).

Regarding claim 17, which inherits the limitations of claim 11, Abe et al. discloses at least one harmonic mixer and one local oscillator (Fig. 13 and 14, blocks 5, 8, 9, 21, 24, and 25, and column 22, lines 12-42).

Regarding claim 18, which inherits the limitations of claim 11, Abe et al. discloses a device for converting the new signal to a signal selected from the group consisting of an audio, video, digital, and analog signal (Fig. 14, block 30, column 22, line 45-column 3, line 10)

Regarding claim 34, Abe et al. discloses an apparatus (Fig. 13 and 14) comprising a signal source (Fig. 13 and 14, block 21), three multipliers (Fig. 13, blocks 8, 9, 24, and 25), two 90 degree phase shifters (Fig. 13 and 14, blocks 7 and 23), and an adder (Fig. 13, block 26) for converting a RF signal (column 20, line 42-column 21, line 27, and column 22, lines 12-15) to a new signal (output of block 26) whose frequency is solely responsive to a predetermined signal frequency (frequency of oscillator, block 21, column 22, line 45-column 23, line 10) provided by the signal source and whose phase is responsive to that of the RF signal, without the need of a phase locked loop or a similar phase lock device, wherein since there is no PLL used in the downconversion of the signal to change the phase of the RF signal at the demodulator output, the phase is responsive to that of the received RF signal.

Claim Rejections - 35 USC § 103

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8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gharpurey (U. S. Patent No. 6, 45, 726).

Regarding claim 3, which inherits the limitations of claim 1 Gharpurey does not disclose converting the RF signal and its reference to an intermediate frequency. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that this feature could have been included to convert the received signal to a desired processing frequency for processing. Thus, the frequency at which the processing occurs is deemed a design choice and does not constitute patentability.

Regarding claim 4, which inherits the limitations of claim 1, Gharpurey does not disclose converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal

10. Claims 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (previously cited in Office Action 6/7/2004).

Regarding claim 13, which inherits the limitations of claim 11, Abe et al. does not disclose at least one power splitter. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the device of Abe et al. contains a splitter in order to send the oscillator signal (Fig. 13, block 21) in two different directions. The power

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splitter ensures equal power distribution of the oscillator signal within the device. Thus, claim 13 does not constitute patentability.

Regarding claim 15, which inherits the limitations of claim 11, Abe et al. does not disclose at least one automatic gain circuit. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that automatic gain control circuits are well known in the art and are used to correct gain imbalances of a signal within the device. The correction of gain imbalances allows for efficient future processing of a signal. Thus, claim 15 does not constitute patentability.

Regarding claim 16, which inherits the limitations of claim 11, Gharpurey does not disclose another apparatus for converting the RF signal to an intermediate frequency. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that this feature could have been included to convert the received signal to a desired processing frequency for processing. Thus, the frequency at which the processing occurs is deemed a design choice and does not constitute patentability.

Allowable Subject Matter

11. Claims 19-32 are allowable over prior art because related references do not disclose combining an RF signal with another signal to produce an output signal, combining the output signal with a reference signal and a phase shifted reference signal to produce two new output signals and combining the two new output signals to provide a new signal whose phase is responsive to the RF signal.

Conclusion


12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Birleson (U.S. Patent No. 6, 714, 776) discloses combining a radio frequency signal with another signal for converting the frequency of the radio frequency signal including an automatic gain control circuit.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
March 1, 2005


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